

Because of the great abundance of insects everywhere indoors and out, people, young and old, should become acquainted with their looks and ways. And this book offers the chance to get started. Its pages are full of charm and wisdom—charm that causes one delight in understanding the ways of dragonflies and butterflies and the wisdom needed to recognize and to know how to control clothes moths, termites, bot flies and numerous other insect pests. "Ticks are a Menace to Animal Life"; "Butterflies are Big Game"; "The Yucca Moth the World's First Horticulturist" writes Dr. Curran. And if you are not too squeamish, be sure to read the chapter, "On Eating Insects" so that you may continue the daily consumption of insects with much more understanding and relish; and who knows, perhaps insects contain more food vitamins than a doctor's prescription.

Insects furnish one of the most marvelous examples of the purpose and spontaneity of life and without insects and flowers this would be a dull world.

Dr. Curran has also written an important systematic work on "North American Diptera" and another popular book: "Insects of the Pacific World." I recommend most highly all of these.

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THE MODIFIED HIND WING OF EUGLOSSA

(Hymenoptera: Apoidea)

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The hind wing of the aculeate Hymenoptera characteristically has two lobes on the posterior margin: the vannal lobe, limited exteriorly by the vannal (= preaxillary) incision, which usually coincides with the end of the vannal vein, and the more proximal jugal (= anal) lobe, limited by the jugal (= axillary) incision, which is usually in line with a more or less chitinized fold near the base of the wing. One or another (rarely both) of these lobes is frequently secondarily absent. Thus, the jugal lobe is absent in the more advanced mutillids, all but the most primitive ants, and certain vespid and sphecoid wasps, as set forth in Bradley's well-known key to the families of the Clistogastra, in Comstock's "An Introduction to Entomology." In the Apoidea, the jugal lobe is absent in *Bombus*, and in the Euglossini. The tribe Euglossini

comprises five genera, both pollen-collecting and parasitic forms, which are limited to the New World, and are mainly tropical.

Although the jugal lobe is missing in *Euglossa*, the space which should be occupied by the lobe is in part filled by a brush formed by a dozen or so strong bristles arising from a basal thickening of the vannal vein. These bristles lie in a single row, but some of the bristles are bent, so that the surface formed is curved. I have seen no reference to any such structure in the Hymenoptera, and term

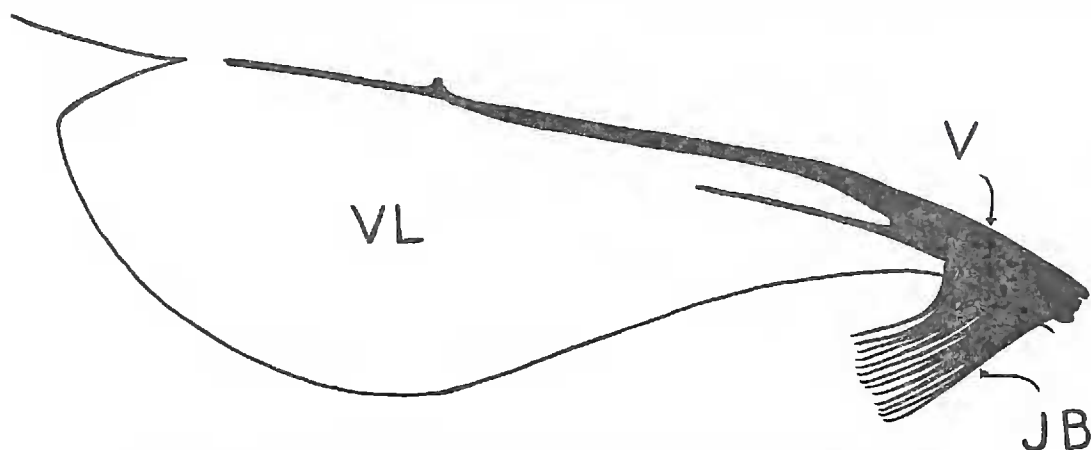


Fig. 1. Portion of base of hind wing of *Euglossa*. JB, jugal brush; V, vannal vein; VL, vannal lobe.

it the *jugal brush*. In at least some species of *Euglossa*, the brush is fairly large and conspicuous, and one could imagine that it might serve the same function as the jugal lobe. However, in *Eulaema* and *Exaerete* the brush is quite small in relation to the area of the wing. Although the jugal brush might be analogous to the jugal lobe, it is certainly not homologous to it, since the bristles are not formed by a breakup of the wing membrane. The presence of a basal lobe on the trailing edge of the flight surface is quite characteristic of the more powerfully flying groups of Diptera and Hymenoptera, and presumably is of some aerodynamic significance.

Morphologically, the Euglossini are among the most remarkable of bees, Michener (1944, Comparative external morphology, phylogeny, and a classification of the bees (Hymenoptera). Bul. Amer. Mus. Nat. Hist. 82:290) describes the unique tentorium of *Euglossa*. In addition, the extensive velvety area (possibly sensory or scent-dispersing) on the anterior surface of the middle tibia in males, and the partially or almost entirely enclosed pubescent area on the hind tibia of the males are not, to my knowledge, known outside the tribe.

I am indebted to Dr. T. H. Hubbell for the use of specimens in the collection of the University of Michigan Museum.